

Work Order ID 135493

135493

Page 1

Wednesday, September 02, 2015 11:56:39 A

Item ID: D119-796-141TRN Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Crosstube Turning Detail
 Start Date: 8/12/2015 Start Qty: 1.00 ***1*** Cust Item ID:
 Required Date: 8/12/2015 Req'd Qty: 1.00 ***1*** Customer:
 Reference:

Approvals: Process Plan: ML5 Date: SEP 02 2015 Tooling: _____ Date: _____
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____
 Run Start ***NR1***
 Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D119-796-141	G

100

0.01

100

MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.03

Mori Seiki CNC Lathe Large

1-Fill tube with sand & install plugs on both ends as per Folio FB316

2-Turn first side as per Folio FB316

3-Blend transition lines only, **do not sand whole tube**:

FOLIO REV: AA

DWG REV: 6

*Use mill bastard file, brush file repeatedly with file card.

*Do not use sandpaper coarser than 320 grit.

1-φ
mm h
15/09/22

110

QC1- Inspection performed by CMM

0.00

110

QC

Memo

0.00

Quality Control

1-φ
mm L
15/09

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">Skid-tube ☐</td> <td style="width: 15%;">Cross tube ☐</td> <td style="width: 15%;">Water Jet ☐</td> <td style="width: 15%;">Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																		
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Large Fab ☐	Composite ☐	Supplier ☐																			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QS1042) Approval																	
Description Work Order Deviation			Disposition																		
			Completed By																		
			Lead hand / Supervisor Approval Verification																		
			QC / QA Coordinator Approval																		
Root Cause		FAULT CATEGORY																			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐																
OTHER : _____																					

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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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120

120

Mori Seiki

Mori Seiki CNC Lathe Large

MORI SEIKI CNC LATHE LARGE

Memo

1-Turn second side as per Folio FB316

2-Blend transition lines only, **do not sand whole tube**:

*Use mill bastard file, brush file repeatedly with file card.

*Do not use sandpaper coarser than 320 grit.

FOLIO REV: AA

DWG REV: G

3-Remove sand and plugs

4- scribe batch # and part # as per dwg

0.00

0.06

130

130

QC

Quality Control

QC1- Inspection performed by CMM

Memo

0.00

0.00

1 16

mark 2
15/09/28

1 16

mark 2
15/09/28

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QS1042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
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 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	QC8- Inspect parts - second check	0.00							DAS
140						<u>1</u>	<u>0</u>		47
QC	Memo	0.00							<u>9-89</u>
Quality Control								<u>15-09-29</u>	
145		0.00							
145						<u>BL</u>		<u>15/10/01</u>	
Crosstubes	Memo	0.00							
Crosstubes	GRIND ONLY TRANSITION LINES SMOOTH LONGITUDE WAY.								
150		0.00							
150						<u>BL</u>		<u>15/10/01</u>	
HandFXtube	Memo	0.01							
Hand Finishing Crosstubes	1- PRESSURE WASH X-TUBE INSIDE AND OUT								
	2- ALODINE AND ACID ETCH X-TUBE INSIDE AND OUT. USE RED SCOTCH BRITE								

DQA: _____ Date: _____



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Date : _____	Step #: _____	QTY Effective : _____		MRB (QS1042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	QC7-Inspect Chemical Conversion Coat	0.00							
160									
QC	Memo	0.00							
Quality Control									
170		0.00							
170	Packaging								
Packaging	Memo	0.00							
Packaging	LOCATION : LG014								
180	QC21- Final Inspection - Work Order Release	0.00							
180									
QC	Memo	0.00							
Quality Control									

DAS
15
9-89

SIA 20151003

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
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Root Cause		FAULT CATEGORY																																																															
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____			
Misidentified ☐	Past Due ☐																																																																

Picklist Print

Wednesday, September 02, 2015 11:56:43 AM

Page 1

Work Order ID: 135493

135493

Parent Item: D119-796-141TRN

D119-796-141TRN

Parent Item Name: Crosstube Turning Detail

Start Date: 8/12/2015

Required Date: 8/12/2015

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV A RQ 14/06/06 VERIFIED BY DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6005-128		Manufactured	No			100	Each	88.0000	1	1			

D6005-128

Crosstube Material

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
HALL	24	
123963	24	
LG	11	
107873	11	
LG003	53	
107872	29	
75631	2	
75642	22	

_____ 1 man 15/09/22

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐	OTHER : _____			

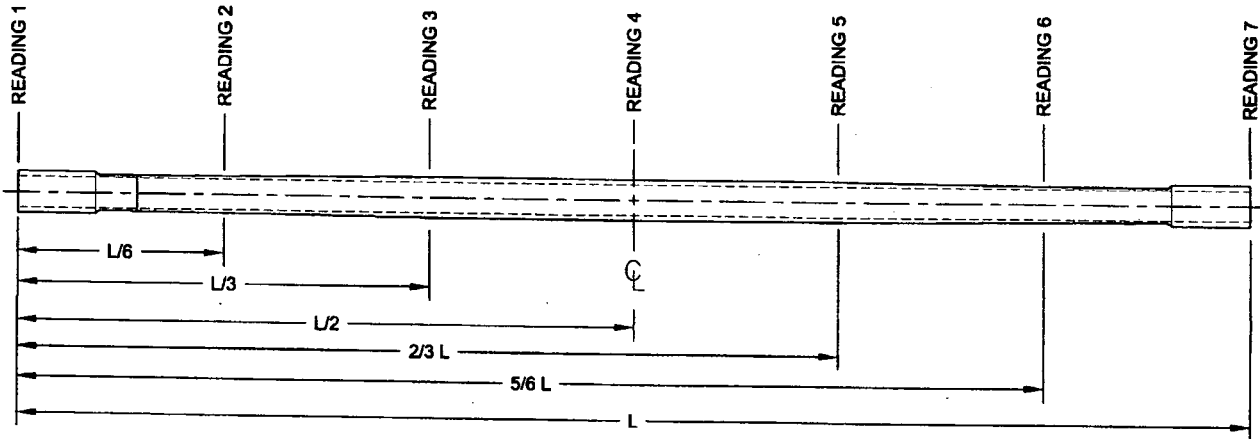
DART AEROSPACE LTD		Work Order:	135493
Description: Crosstube Assembly (AW119 MKII Fwd)		Part Number:	D119-796-141
Inspection Dwg: D119-796-141 Rev: G		Page 1 of 2	

FIRST ARTICLE INSPECTION CHECKLIST

	Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	6.00	+/-0.030	6.00	/		vern	CNC-08
	2.516	+/-0.005	2.516	/		↓	
	2.333	+0.005/-0.000	2.336	/			
	2.333	+0.005/-0.000	2.337	/			
	2.408	+0.005/-0.000	2.411	/			
	2.502	+0.005/-0.000	2.507	/			
	2.596	+0.005/-0.000	2.601	/			
	2.596	+0.005/-0.000	2.597	/			
SIDE B	6.00	+/-0.030	6.00	/		vern	CNC-08
	2.516	+/-0.005	2.518	/		↓	
	2.333	+0.005/-0.000	2.337	/			
	2.333	+0.005/-0.000	2.338	/			
	2.408	+0.005/-0.000	2.412	/			
	2.502	+0.005/-0.000	2.507	/			
	2.596	+0.005/-0.000	2.601	/			
	2.596	+0.005/-0.000	2.597	/			
	102.26	+/-0.020	102.26	/		tape	LG-11

DART AEROSPACE LTD		Work Order: 135493
Description: Crosstube Assembly (AW119 MKII Fwd)		Part Number: D119-796-141
Inspection Dwg: D119-796-141 Rev: G		Page 2 of 2

WALL THICKNESS MEASUREMENT



Location	WALL THICKNESS MEASUREMENT (IN)				Deviation Δw (max-min)	TOLERANCE
	w1	w2	w3	w4		
READING 1 L= 0"	.268	.271	.256	.254	.017	0.030"
READING 2 L= 17	.183	.190	.190	.181	.009	
READING 3 L= 34	.275	.282	.275	.265	.017	
READING 4 L= 51	.308	.308	.295	.289	.013	-0.030"
READING 5 L= 68	.270	.289	.283	.265	.024	
READING 6 L= 85	.181	.194	.192	.179	.015	
READING 7 L= 102	.262	.266	.263	.257	.009	

Calibration Result

Actual Block Thickness: .100 - .250

Sitescan 250 Measured Thickness: .100 - .250

JAS
47

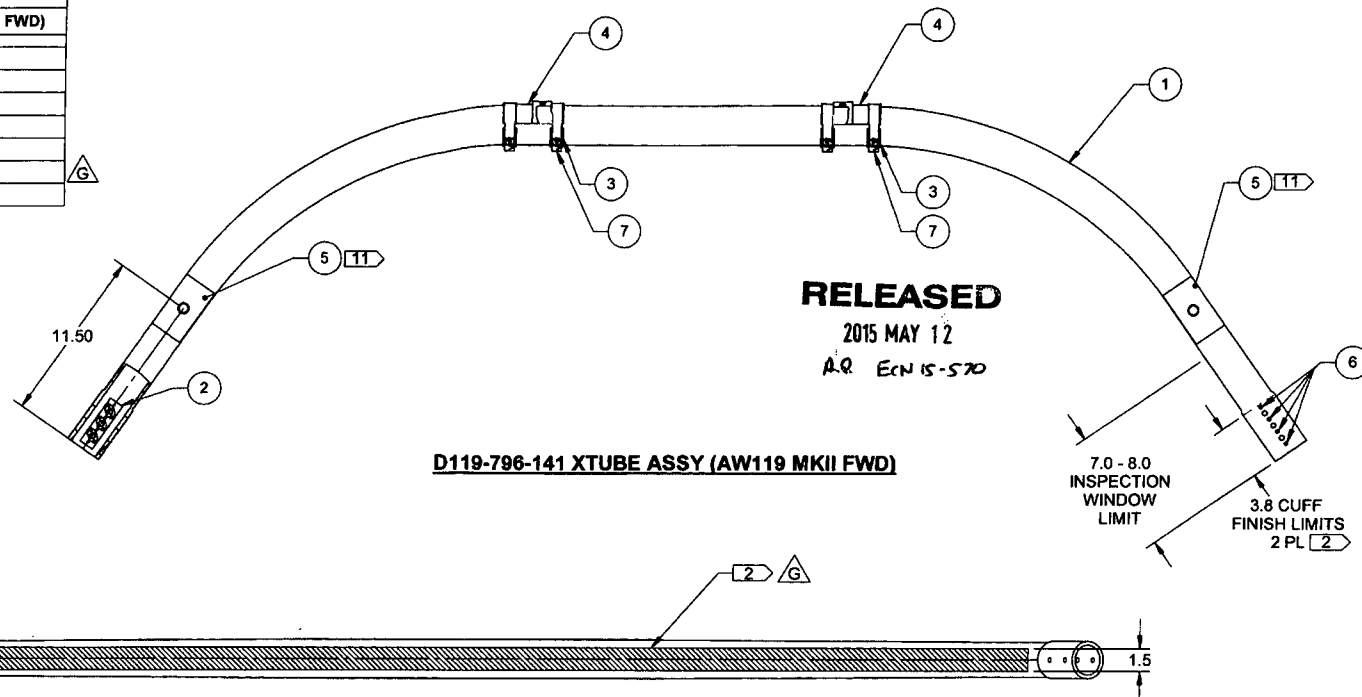
Measured by: mmL
Date: 15/09/28

Audited by: 9-89
Date: 15-09-29

Preliminary Approval:
Date:

Rev	Date	Change	Revised by	Approved
A	15.04.14	New Issue (P/O D119-796-101)	KJ	
B	15.05.14	Tolerances revised per Dwg Rev G	KJ	

ITEM	QTY	P/N	DESCRIPTION
	X	D119-796-141	XTUBE ASSY (AW119 MKII FWD)
1	1	D119-796-141BND	CROSSTUBE, FWD
2	4	D2873-043	RADIUS BLOCK
3	4	D5123-3	CLAMP CUSHION
4	2	D5124-1	FWD SUPPORT
5	2	D5152-041	FWD POST MOUNT ASSY
6	16	CR3212-4-08	RIVET, BLIND CSK
7	4	MS21920-24	CLAMP



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 135493ML3
1508-14

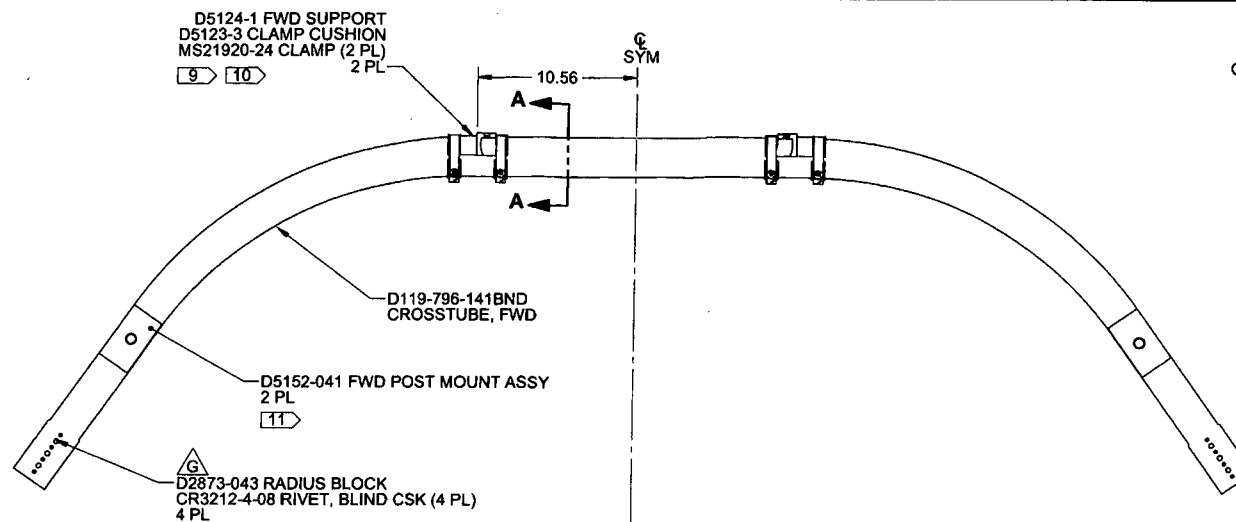
D119-796-141 XTUBE ASSY (AW119 MKII FWD)

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: APPLY MATTE CLEAR COAT PER QSI 005 4.2
MASK UNDERSIDE OF CROSSTUBE AS SHOWN (B3-1, HATCHED AREA), PAINT OUTSIDE PER DART QSI 005 4.2 AFTER APPLYING CLEAR
DO NOT APPLY FINISH (PAINT OR CLEAR COAT) TO CUFFS IN LOCATION SHOWN, MASK PRIOR TO FINISHING
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY USING PART NUMBER "D119-796-141" AND BATCH NUMBER ON INSIDE OF CUFF PER QSI 044 6.4
- 7) WEIGHT: 18.43 lbs
- 8) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE.
THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM DEFECTS SUCH AS SCRATCHES, NICKS OR DENTS.
DEFECTS UP TO 0.005 MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 9) AFTER FINISHING, ABRASE MATING SURFACES OF D5124-1 FWD SUPPORTS AND CROSSTUBE WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4105S WASHN'WIPE DEGREASER. APPLY A 0.100 MIN THK LAYER OF PROSEAL 890 ON THE INSIDE CONCAVE SURFACE OF THE D5124-1 FWD SUPPORTS AND INSTALL AT AN 8.4" OFFSET FROM THE CROSSTUBE BENDING PLANE. INSTALL THE MS21920-24 CLAMPS AND D5123-3 CLAMP CUSHIONS WHILE WET.
- 10) TORQUE MS21920 CLAMPS 80 - 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY, THE NUT IS FACING AFT AND HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.
- 11) PRIOR TO FINISHING, ABRASE MATING SURFACES OF CROSSTUBE AND D5152-041 WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4105S WASHN'WIPE DEGREASER. INSTALL D5152-041 WITH LAYER OF PROSEAL 890 ON INSIDE CONCAVE SURFACE, 0.100 MIN THK. LOCATE D5152-041 USING TOOL DT10089.

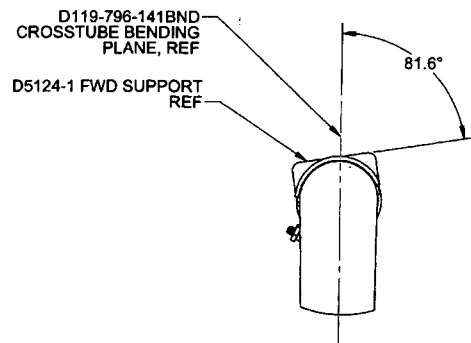
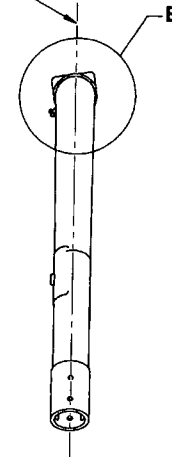
G	FINISHING ORDER ADJUSTED, CR3212-4-08 WAS -.07, CUFF DIA TOLERANCE INCREASED TO +/-.0005	AP	15.04.24
F	REMOVED PRIME/PAINT ON CUFFS, 2.516 WAS 2.500 (C8-5)	AP	15.02.03
E	D5152-041 FWD STEP POST ASSY WAS D5150-1 STEP POST, SCOTCH BRITE 7447 RED WAS 180 GRIT SANDPAPER, ANGLE (B7-2) DIMENSIONED FROM NEW DATUM	DB	15.01.15
D	ADD D5150-1 STEP POST (2X), MOVED INSPECTION WINDOW DETAIL TO SHEET 1, MODIFIED NOTES ON SHT 1 & 3	DB	14.11.25
C	CR3212-4-07 RIVETS WERE CR3212-4-09, 7.5 DEG CUFF ANGLE OFFSET REMOVED (SHT 3), CUFF DIAMETER ON D119-796-141 TRN REDUCED TO 2.500, ADDED INSPECTION WINDOW (B7-3), ADDED SHT 4	AP	14.10.23
B	ADDED D2873-043 RADIUS BLOCK, CR3212-4-09 RIVETS, ADDED SKIDTUBE REFERENCE FOR LOCATING CUFF HOLES, RE-ORGANIZED NOTES AND REMOVED REDUNDANT INFORMATION	AP	14.09.02
A	NEW ISSUE	AP	14.08.09
REV.	DESCRIPTION	BY	DATE
DESIGN	AP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AP		
CHECKED	CP	DRAWING NO.	REV. G
MFG. APPR.	DD	D119-796-141	SHEET 1 OF 6
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	XTUBE ASSY (AW119 MKII FWD)	NTS
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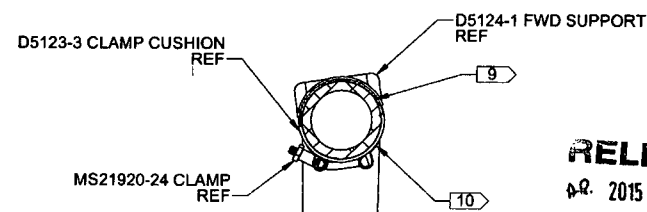


D119-796-141 XTUBE ASSY (AW119 MKII FWD)

D119-796-141BND
CROSSTUBE BENDING
PLANE, REF



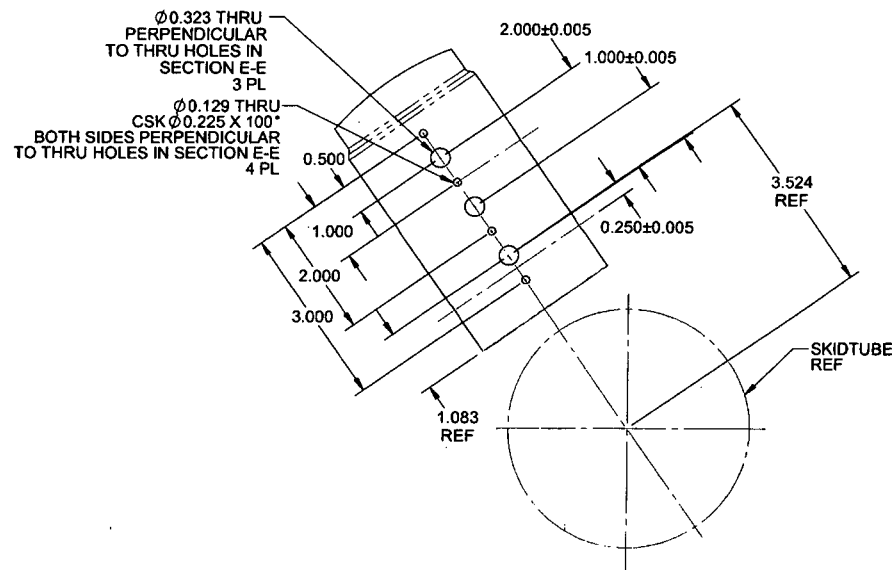
DETAIL B
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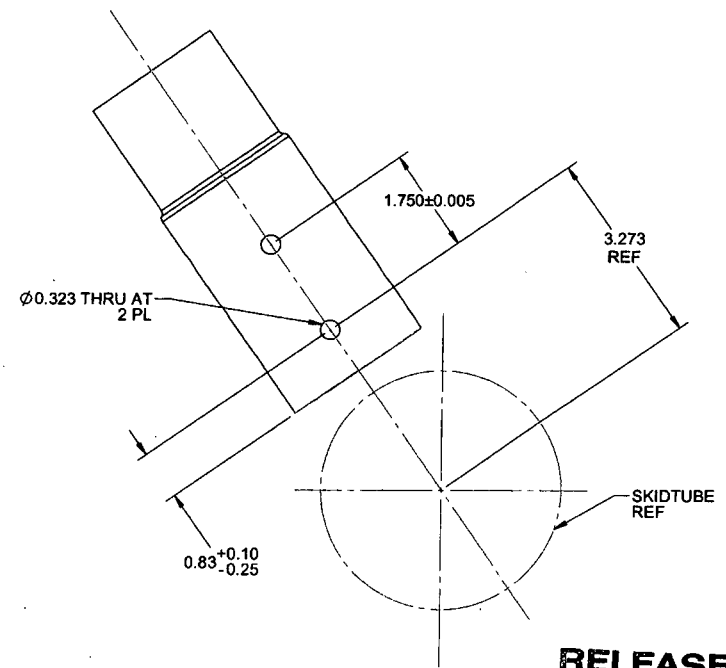
SECTION A-A
SCALE 2X

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2015 MAY 12

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	CHECKED	CP	DRAWING NO.	REV. G
	MFG. APPR.	DD	D119-796-141	SHEET 2 OF 8
	APPROVED	HS	TITLE	SCALE
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VIEW D
SCALE 4X

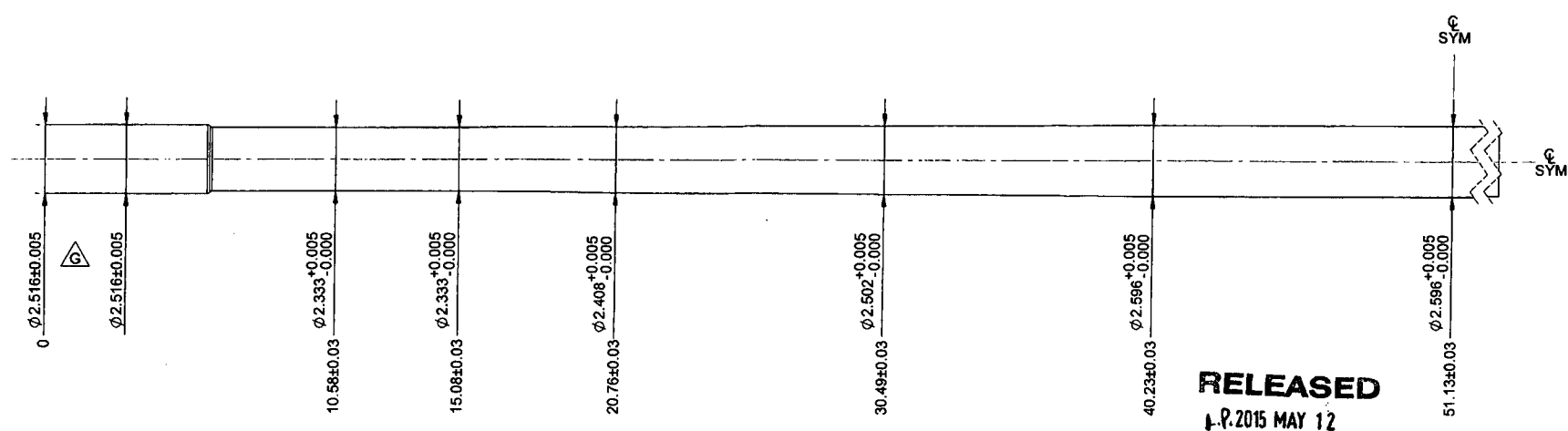


VIEW E-E
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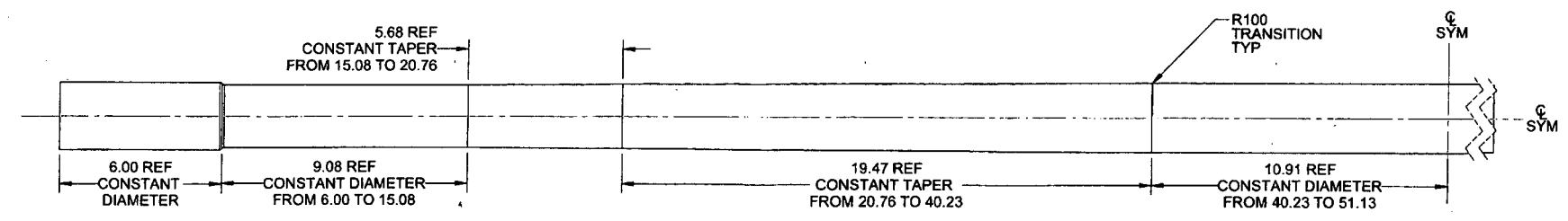
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15 MAY 12

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	CHECKED	CP	DRAWING NO.	REV. G
	MFG. APPR.	DD	D119-796-141	SHEET 4 OF 6
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D119-796-141TRN CROSSTUBE, FWD

NOTES:

- 1) MATERIAL: MANUFACTURE FROM D6005-103
FINISHED LENGTH = 102.26 ± 0.020 (BEFORE BENDING/TRIMMING)
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 16.70 lbs
- 8) PART IS SYMMETRICAL ABOUT CENTERLINE

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CHECKED	CP	DRAWING NO.	REV. G
MFG. APPR.	DD	D119-796-141	SHEET 5 OF 6
APPROVED	HS	TITLE	SCALE
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